AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of fabricating an infrared device comprising a cadmium mercury telluride, $Hg_{1-x}Cd_xTe$ where x is ~~[[0≤x≤1]]~~0<x<1, device layer, the method comprising the steps of:

a) taking a crystalline silicon substrate,

b) growing one or more buffer layers selected from zinc telluride, cadmium telluride and cadmium zinc telluride on said substrate by molecular beam epitaxy to form a buffered silicon substrate, and

c) growing at least one device layer of cadmium mercury telluride on the buffered silicon substrate by metal-organic vapour phase epitaxy.

2.-5. (Canceled).

6. (Canceled).

7. (Canceled).

8. (Previously Presented) A method as claimed in claim 1 wherein the step of growing at least one buffer layer by molecular beam epitaxy comprises the step of growing a layer of zinc telluride on the substrate and growing a layer of cadmium telluride on said zinc telluride layer.

9. (Previously Presented) A method as claimed in claim 1 further comprising the step, prior to the step of growing the at least one layer of cadmium mercury telluride, of cleaning the surface of the uppermost buffer layer grown by molecular beam epitaxy.

10. (Previously Presented) A method as claimed in claim 1 wherein the method further comprises the step, after growing at least one buffer layer by molecular beam epitaxy, of growing at least one buffer layer by metal organic vapour phase epitaxy.

11. (Original) A method as claimed in claim 10 wherein at least one buffer layer grown by metal organic vapour phase epitaxy step is the same as a buffer layer grown by molecular beam epitaxy.

12. (Original) A method as claimed in claim 11 wherein the step of growing at least one buffer layer by molecular beam epitaxy comprises growing a top layer of cadmium telluride on a base layer zinc telluride on the substrate the step of growing at least one further buffer layer comprises growing a further cadmium telluride layer by metal organic vapour phase epitaxy.

13. (Previously Presented) A method as claimed in claim 1 wherein the step of growing the at least one cadmium mercury telluride layer comprises sequentially growing thin layers of CdTe and HgTe which interdiffuse during growth to give a single layer of CMT, the relative thicknesses of the CdTe and HgTe layers determining the cadmium content x.

14. (Previously Presented) A method as claimed in claim 1 wherein di-*iso*-propyltelluride is the tellurium precursor and dimethylcadmium is the cadmium precursor in the step of growing the at least one cadmium mercury telluride layer by MOVPE.

15. (Previously Presented) A method as claimed in claim 1 wherein the step of growing the at least one cadmium mercury telluride layer involves doping at least one of the cadmium mercury telluride layers with a dopant.

16. (Original) A method according to claim 15 wherein the dopant is chosen from iodine, arsenic, indium, phosphorous and antimony.

17. (Previously Presented) A method according to claim 1 wherein the step of growing at least one cadmium mercury telluride layer comprises the step of growing a plurality of layers of cadmium mercury telluride, at least some of the layers having a different thickness, composition, dopant and/or dopant concentration.

18. (Previously Presented) A method according to claim 1 wherein the method further comprises the step of device processing.

19. (Original) A method according to claim 18 wherein the method comprises the step, after the device processing step, of coating the devices with at least one passivating layer.

20. (Original) A method according to claim 19 wherein the at least one passivating layer comprises cadmium telluride.

21. (Previously Presented) A method according to claim 19 wherein the step of coating the device with a passivating layer comprises growing at least one epitaxial layer grown by metal organic vapour phase epitaxy.

22. (Original) A method according to claim 18 wherein the method involves the step, after the device processing step, of growing further epitaxial layers of cadmium mercury telluride by metal organic vapour phase epitaxy.

23.-37. (Canceled).

38. (Currently Amended) A method of fabricating an infrared device comprising a cadmium mercury telluride, $Hg_{1-x}Cd_xTe$ where x is ~~[[0≤x≤1]]~~0<x<1, device layer, the method comprising the steps of:

a) taking a crystalline silicon substrate in which the orientation is (001) mis-aligned between 1° and 10° towards the [1 1 1] direction,

b) growing one or more buffer layers selected from zinc telluride, cadmium telluride and cadmium zinc telluride on said substrate by molecular beam epitaxy to form a buffered silicon substrate and to set the substrate orientation to (001), and

c) growing at least one device layer of cadmium mercury telluride on the buffered silicon substrate by metal-organic vapour phase epitaxy.

39. (New) A method as claimed in claim 1 wherein the silicon substrate orientation is (001) mis-aligned between 1° and 10° towards the [111] direction, and wherein the buffer layer sets the substrate orientation to (001).